CLAIMS

1. A safe injection device comprising a support sheath (14) having a proximal end (14A) and a distal end (14B), a syringe body (10) secured to said support sheath, and a protection sheath (16) suitable for sliding axially between a retracted position in which it is retracted into an annular space (18) formed between the syringe body (10) and the support sheath (14), and an extended protection position in which it projects beyond the distal end (14B) of the support sheath, the device further comprising retaining means suitable for adopting an active retaining configuration for retaining the protection sheath in the retracted position and, starting from said active configuration, suitable for being urged so as to allow the protection sheath to be extended under drive from thrust means (30),

the device being characterized in that the syringe body is secured to the support sheath via a ring (20) having a coupling wall (22) that extends substantially transversely between the syringe body (10) and the support sheath (14), said wall presenting at least one slot (23) enabling the retaining means to be acted upon from the side of the coupling wall (22) that is opposite from the distal end of the support sheath, and in that the ring (20) is formed integrally with the support sheath and/or with the syringe body (10).

2. A device according to claim 1, characterized in that the ring (20) is formed integrally with the syringe body (10).

3. A device according to claim 1 or claim 2, characterized in that, in its inside face facing towards the distal end (14B) of the support sheath (14), the coupling wall (22) presents a setback in which the proximal end of a thrust spring (30) is disposed, the

distal end of the spring bearing against the protection sheath.

4. A device according to any one of claims 1 to 3, characterized in that the coupling wall (22) presents at least one reinforcing rib (34).

5. A device according to any one of claims 1 to 4, characterized in that the ring (20) constitutes a part that is distinct from at least one of the elements constituted by the syringe body (10) and by the support sheath (14), and in that the ring (20) and said element (14) present respective fastener skirts (40), said skirts coming into contact with each other via axial surfaces whereby the ring and said element are fastened together.

6. A device according to any one of claims 1 to 5, characterized in that the ring (20) constitutes a part that is distinct from at least one of the elements constituted by the syringe body and by the support sheath (14) and is fastened to said element by a fastening technique selected from heat-sealing, mutual engagement, a force-fit, and adhesive.

7. A device according to any one of claims 1 to 6, characterized in that the retaining means comprise at least one retaining tab (17) that passes through the slot (23) and that extends through the coupling wall (22).

8. A device according to any one of claims 1 to 7, characterized in that the retaining means comprise at least one retaining tab that is secured to the protection sheath and in that it includes at least one retaining surface (19) for said tab which is stationary relative to the syringe body (10), the retaining tab being retained on the retaining surface (19) when said tab is in its

active retaining configuration and being capable of being displaced to escape from said surface.

9. A device according to any one of claims 1 to 8, further comprising an injection piston (12), the device being characterized in that the piston is secured to a trigger member (13A) adapted, at the end of the piston injection stroke, to trigger urging the retaining means away from their active configuration.

10. A device according to claim 9, characterized in that the ring (20) presents at least one transmission tab (37) adapted to be displaced by the trigger member (13A) to urge the retaining means away from their active configuration.